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TatA (Eco)	M- <u>GGISIWQLLI</u> IAVIVVLLFGTKKL	26
TatE (Eco)	M- <u>GELISITKLLV</u> VAAALVLLFGTKKL	26
TatAy (Bsu)	<u>M</u> -PIGPGSLAVIAIVALIIFGPKKL	25
TatAd (Bsu)	MFSNIGIPGLILIFVIAIIIFGPSKL	27
TatAc (Bsu)	<u>M</u> -ELSFTKILVILFVGFLVFGDKLP	25
TatB (Eco)	<u>ME</u> -DIGFSELLLVFIIGLVVLGEPRLPVAVKTVAGWIRALRSLATTVQNELTQELKLQ	49
	* *	
TatA (Eco)	-----SIGSDLGASIKGFKKAMSDE-----PKQDKTSQDADFTAKTI	64
TatE (Eco)	-----TLGGDLGAAIKGFKKAMNDD-----A-AAKKGADVLDQAEKL	63
TatAy (Bsu)	-----ELGKAAGDTLREFKNATKGLT-----SDEEEKKKEDQ-----	57
TatAd (Bsu)	-----EIGRAAKRTLLEFKSATKSLV-----SGDEKEEKSAELTAVK-	64
TatAc (Bsu)	-----ALGRAAGKALSEFKQATSGLT-----QDIRKNDSSEN-----K-	57
TatB (Eco)	EFQDSLKKVEKASLTNLTPELKASMDELQAAESMKRSYVANDPEKASDEAHTIHN	114
 *	
TatA (Eco)	ADKQADTNQE-----QAKTEDAKRHDKEQV	89
TatE (Eco)	SHKE-----	67
TatAy (Bsu)	-----	57
TatAd (Bsu)	-----QDKNAG	70
TatAc (Bsu)	-----EDKQM-	62
TatB (Eco)	VVKDNEAAHEGVTPAAAQTOASSPEQKPEPTTPEPVVKPAADAEPKTAAPSPSSSDKP	171

FIG. 1A

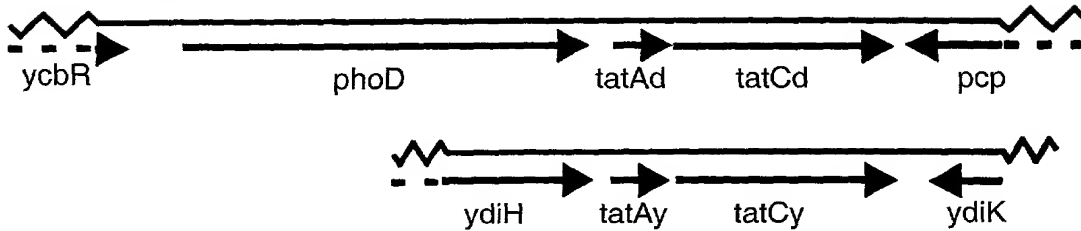
TatC (Eco)	MSVEDTQ--PLITHLIELRR <u>RL</u> LNCCI IAVIVIFLCLVYFANDIYH -LVSAPLIK	51
TatCy (Bsu)	MTRMKVNQMSLLEHIAELRR <u>RL</u> LIVALAFVFFIAGFFLAKPIIVYLQETDEAK	50
TatCd (Bsu)	MDKKETH---LIGHLEELRRRIIVTLAAFFFLITAFLEVDIYDWLIRDLOGK	51
	*. . . . * *	
TatC (Eco)	QLPQGSTMATDVASPPFF <u>TKLTFMVS</u> LILSAPVILYQVWAFIAPALYKHERR	105
TatCy (Bsu)	QL---TLNAFNLT <u>DP</u> LYVFMQFAFIIGIVLTSPVILYQLWAFVSPGLYEKERR	104
TatCd (Bsu)	-----LAVLGPSEILWVYMMLSGICAIAASIPVAAYQLWRFVAPALTKTERK	98
 ** **.* **.* **.*	
TatC (Eco)	LVPPLL V ---SSSL <u>LFYIGMAFAYFVF</u> PLAFGLANTAPE-GVQVSTDIASYL	155
TatCy (Bsu)	VTL SYI ---PVSILLFLAGLSFSYILFPFVDFMKRISQDLNVNQVIGINEYF	155
TatCd (Bsu)	VTIMYIMYIPGLFALFLAGISFGYFVLFPVLSFLTHLSSG-HFETMFTADRYF	151
 ** * *	
TatC (Eco)	<u>SFV</u> MALFMAFGVSFEV <u>PVAIVLLCWMGITSPEDLRKKR</u> PYVLVGAFVVGMLLTP	209
TatCy (Bsu)	HFLQLTIPFGLLFQMPVILMFLTRLGIVTPMFLAKIRRYAYFTLLVIAALITP	209
TatCd (Bsu)	RFMVNL SLP FGFLFEMPLVVMFLTRLGIILNPYRLAKARKLSYFLLIVVSILITP	205
	* * * *	
TatC (Eco)	PDVFSQTLIAIPMYCLFEIGVFFSRE- <u>YVGKGRNREEENDAEAESEKTEE</u>	258
TatCy (Bsu)	PELLSHMMVTVPLLILYEISILISKAAAYRKAQKSSAADRDVSSG-----Q	254
TatCd (Bsu)	PDFISDFLVMIPLLVLFEVSVTL SAFV YKKRMRE-----ETAAA-----A	245
	* * *	

FIG. 1B

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A B. subtilis



B E. coli

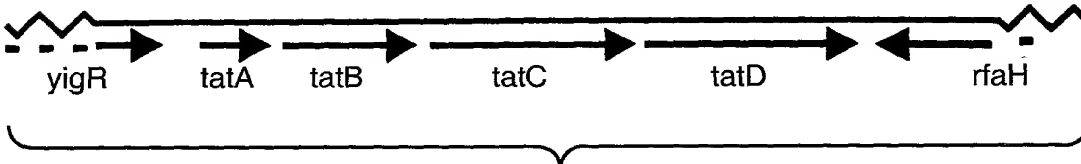
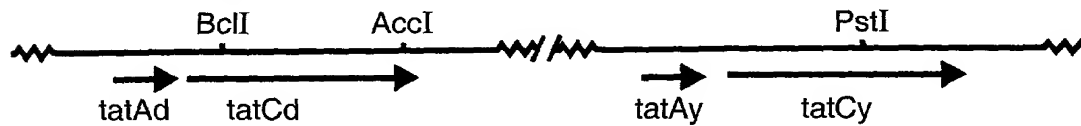
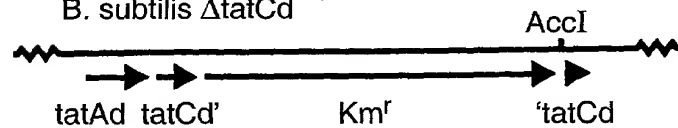


FIG._2

A B. subtilis 168

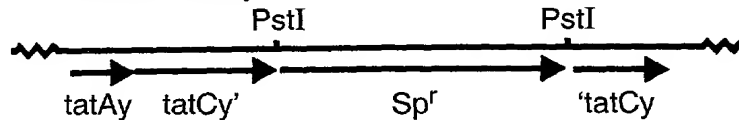


Replacement *BclI*-*AccI*
 Fragment with *Km^r*

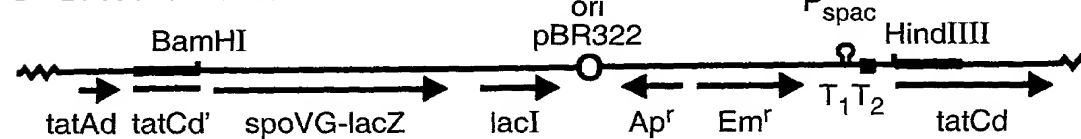


Insertion *Sp^r*
 in *PstI* Site

B. subtilis ΔtatCy



B B. subtilis ItatCd



C B. subtilis ItatCy

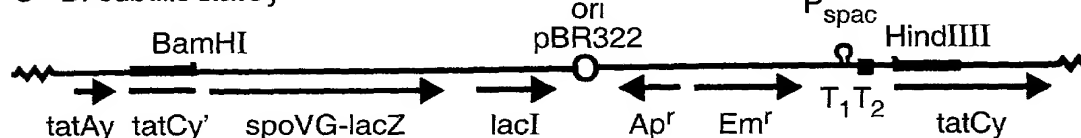


FIG._3

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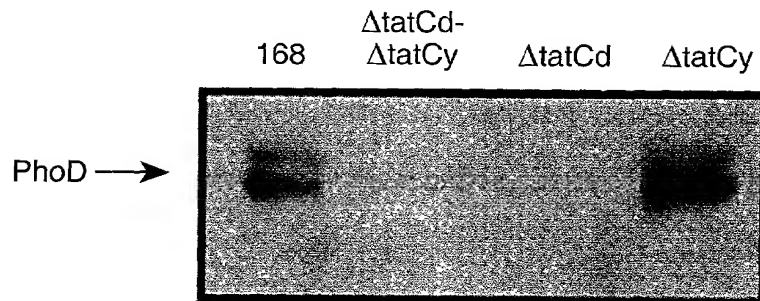


FIG._4A

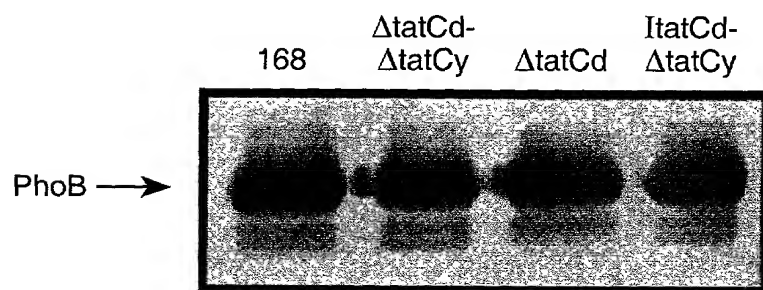


FIG._4B

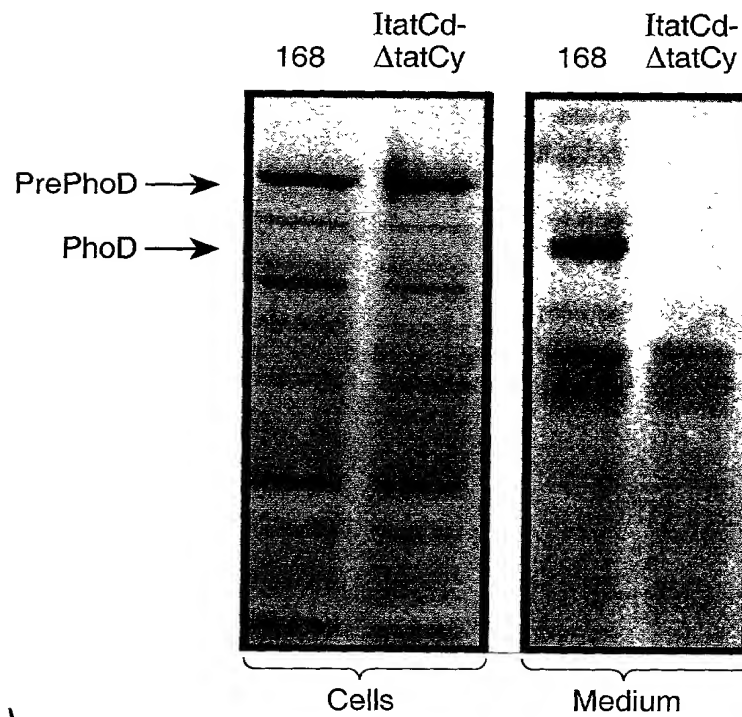


FIG._4C

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Δ tatCd- Δ tatCy

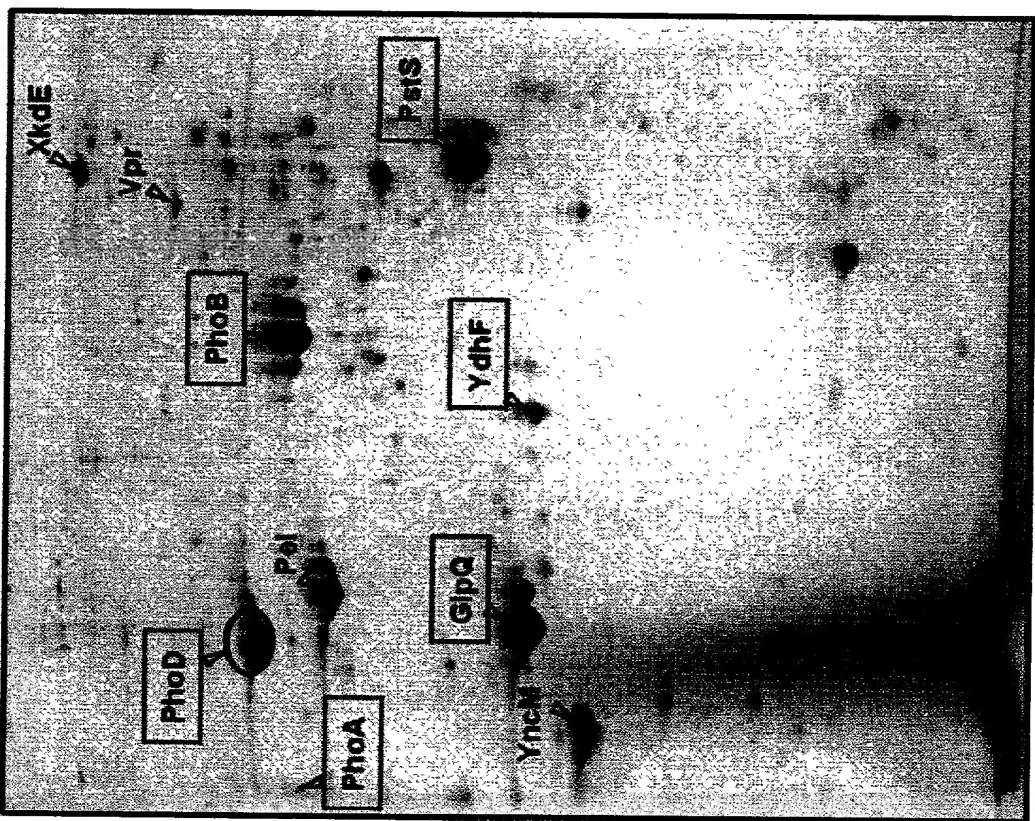
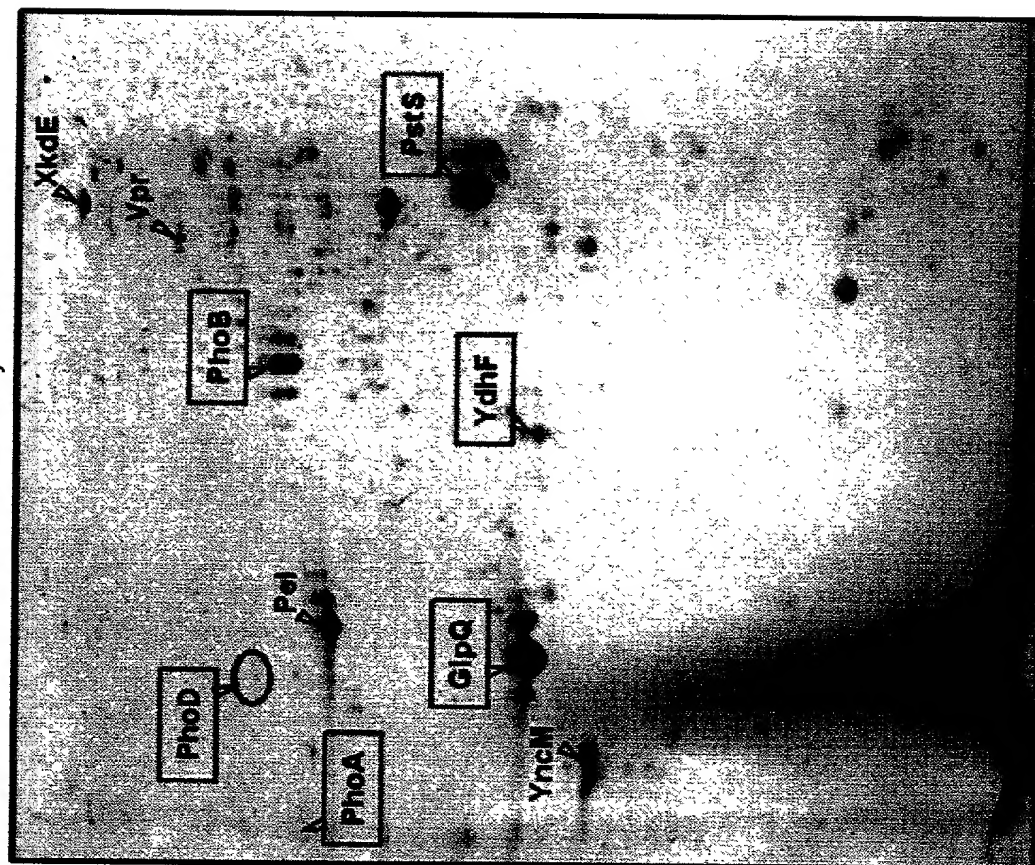


FIG._5

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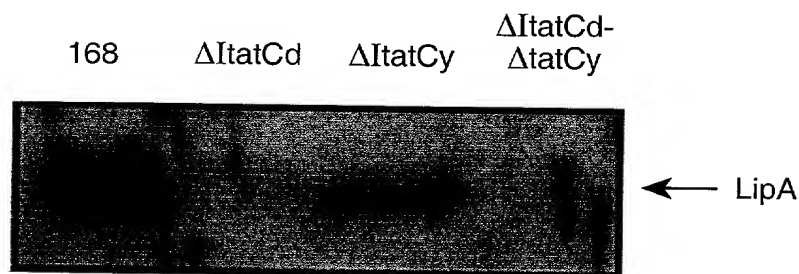


FIG._6

Protein	N	h	RR-Motif	H	h	C
AlbB	1	0.1	RRILL	27	2.0	AIA
AmyX TM	9	-0.8	RRSFE	15	1.1	-
AppB TM	8	0.5	RRTLM	19	2.3	-
LipA	7	-1.1	RRIIA	19	1.2	AKA
OppB TM	8	-0.6	RRLVY	24	2.0	-
PbpX	2	-2.2	RRRKL	14	2.9	WNA
PhoD	3	-1.3	RRKFI	17	0.9	VGA
QcrA TM	1	-1.1	RRQFL	19	1.3	-
TlpA TM	1	-0.8	RRLII	21	2.4	-
WapA ^W	1	-3.0	RRNFK	18	2.3	VLA
WprA	8	-1.7	RRKFS	20	1.9	AAA
YceA TM	1	-0.4	RR AFL	21	2.2	-
YesM TM	1	-1.5	RRMKI	20	2.4	QYA
YesW	1	-1.3	RRSCL	19	2.0	VKA
YfkN TM	1	-1.2	RRTHV	17	1.7	IHA
YkpC	8	-1.0	RRVAI	17	2.3	SLA
YkuE	1	-1.3	RRQFL	17	1.0	GYA
YmaC	7	0.0	RRFLL	15	2.4	YSL
YubF TM	9	-2.7	RRNTV	23	2.0	-
YuiC	8	0.2	RRLLM	20	1.9	IEA
YvhJ TM	2	-1.7	RRKIL	18	2.5	-
YwbN	1	-1.8	RRDIL	23	1.4	QTA

FIG._7

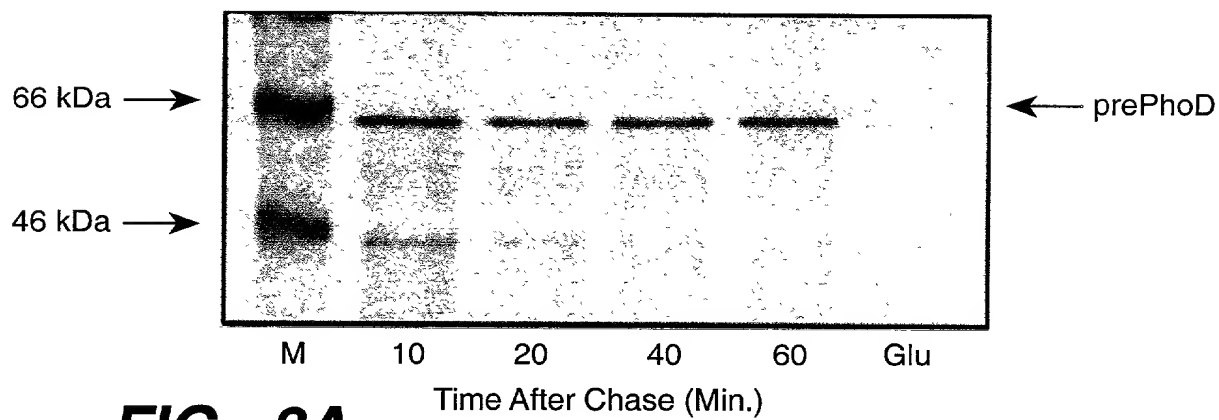


FIG._8A

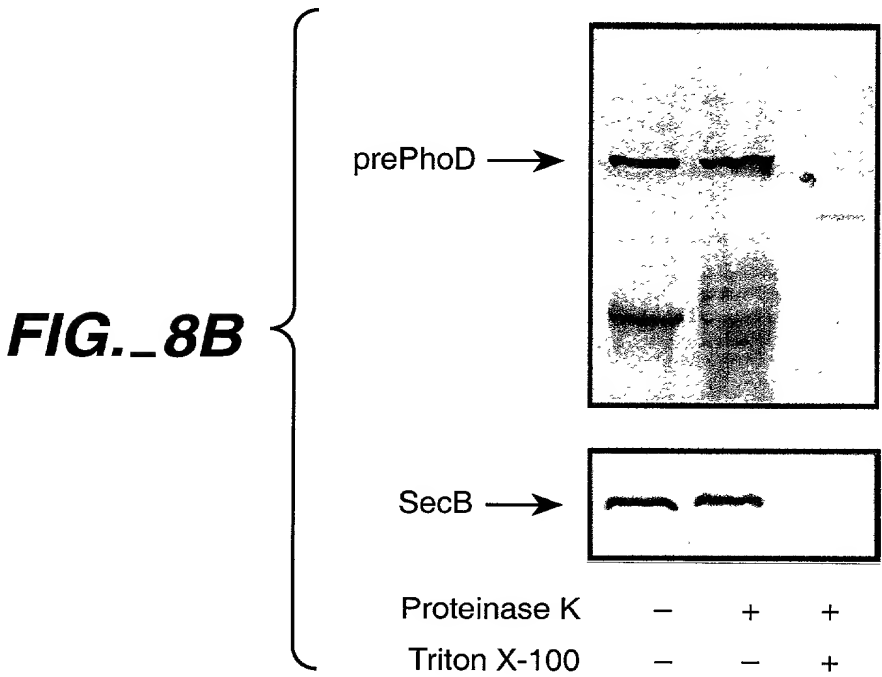


FIG._8B

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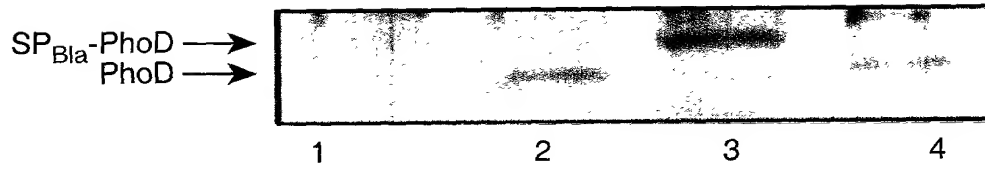


FIG._9A

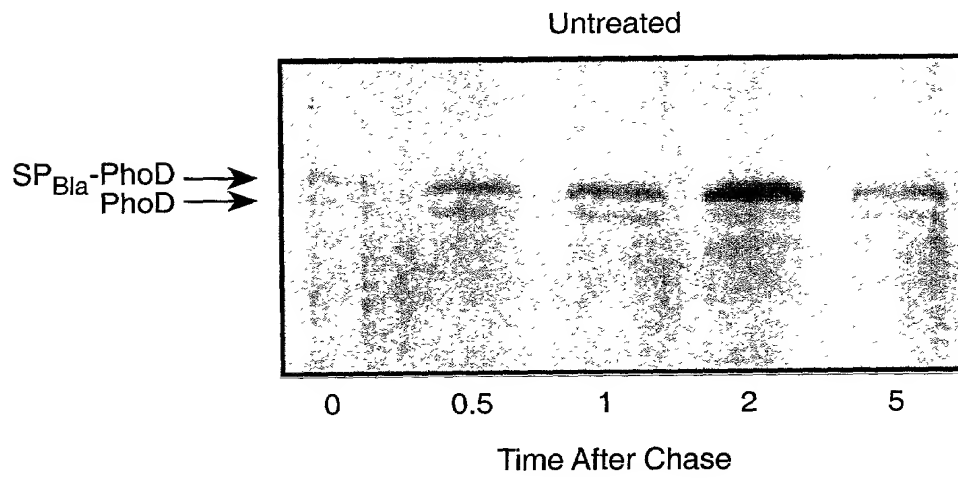


FIG._9B

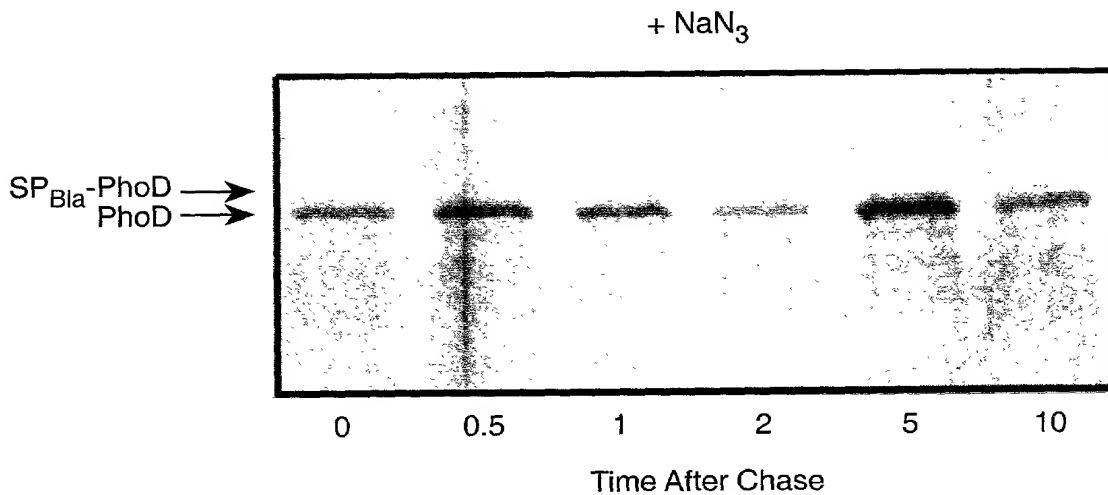


FIG._9C

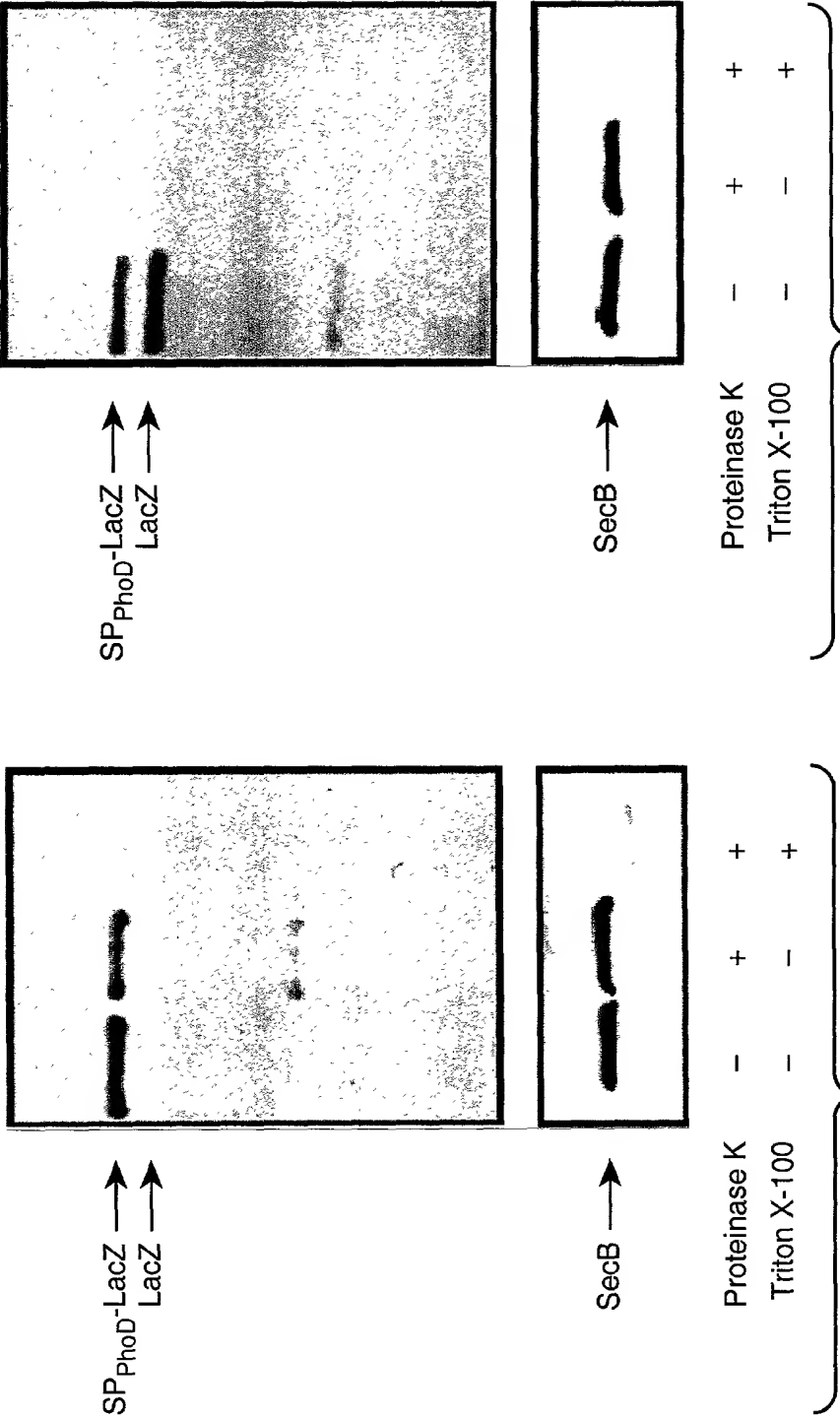


FIG. 10B

FIG. 10A

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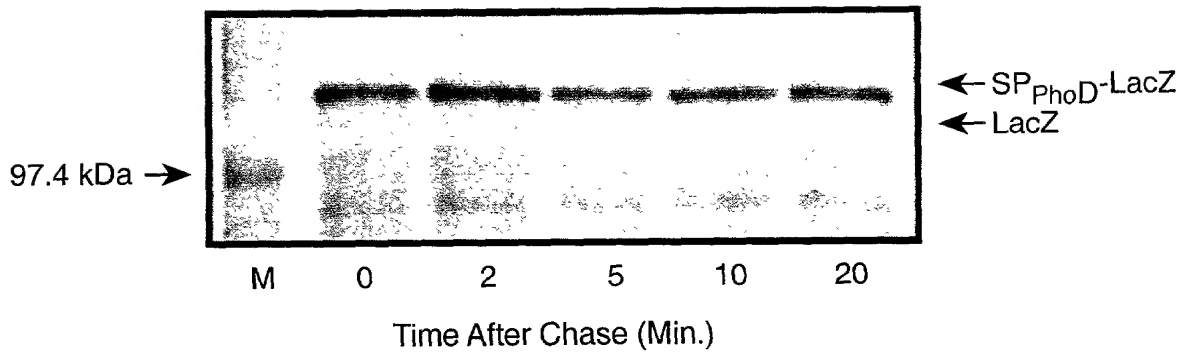


FIG._11A

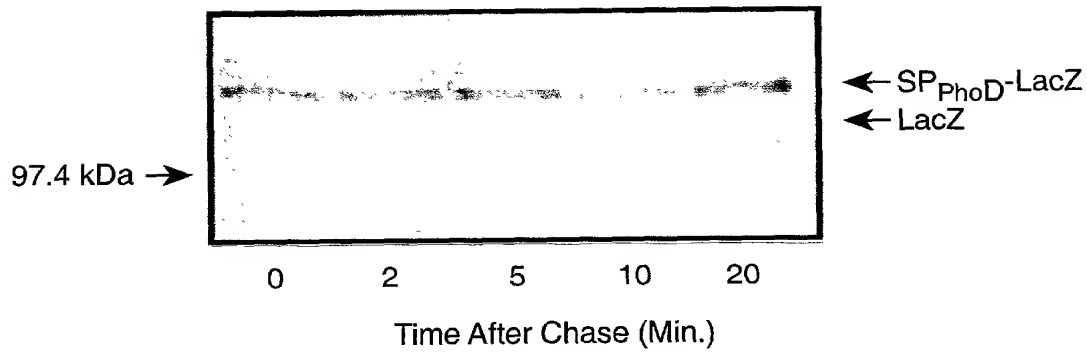
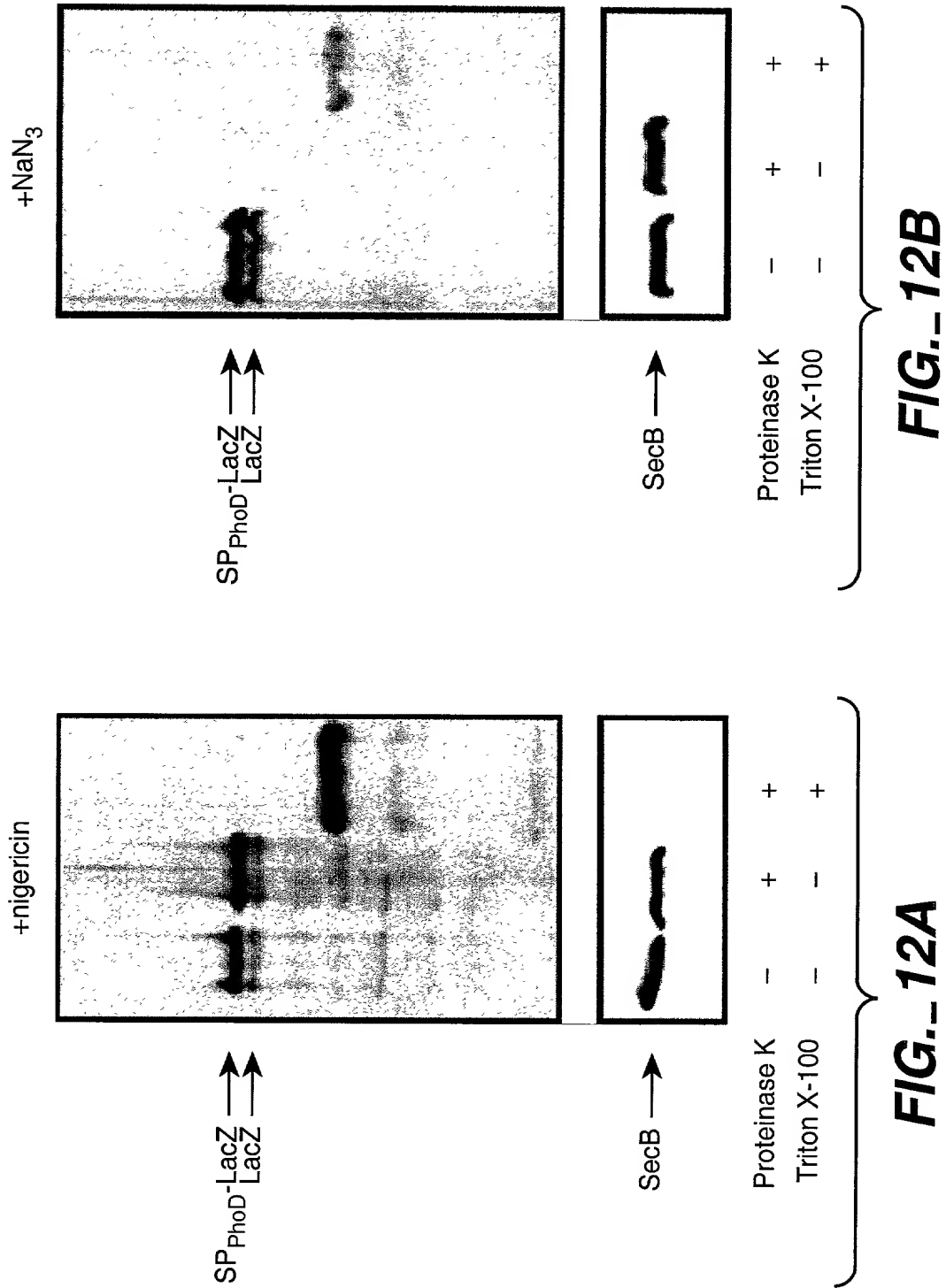


FIG._11B

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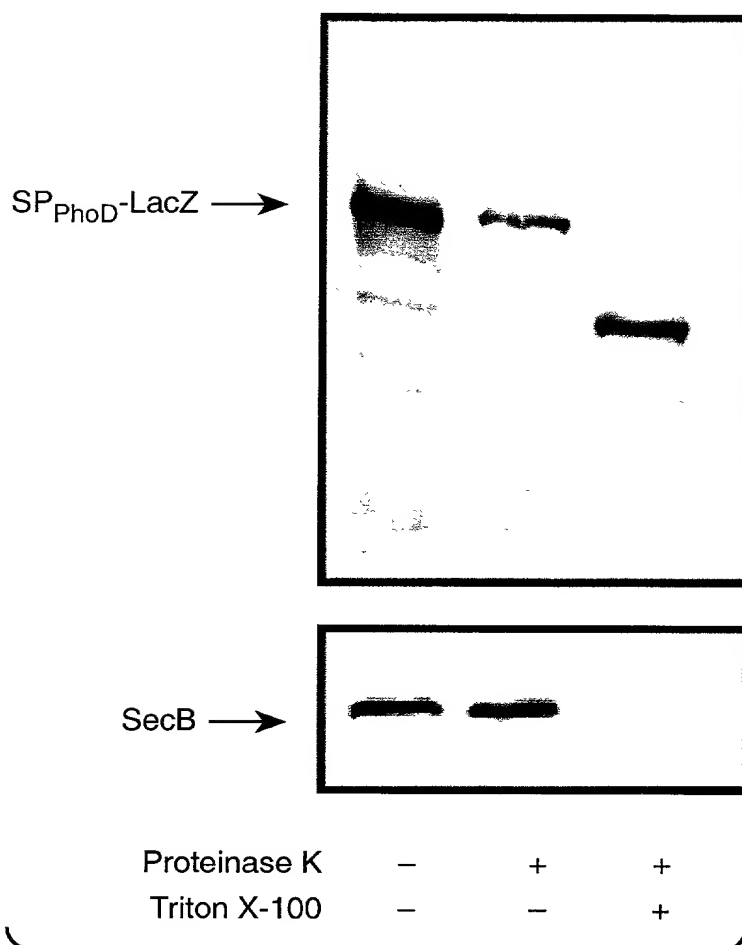


FIG. 13

Homologs in *B. alcalophilus*

TatA

MGGLSVGSVVLIALVALLIFGPKKLPELGKAAGSTLREFKNATK
GLADDDDDTKSTNVQKEKA

TatC

MTMMTPNQQTSKKKKRKGRKGRVPMQDMSIMDHAEELRRRIF
VVLAFFIVALIGGFFLAVPVITFLQNSPQAADMPFNAFRLTDPLRV
YMNEFAVITALVLIIPVILYQLWAFVSPGLKENEQKATLAYIPIAFL
LFLAGIAFSYFILLPFVISFMGQMADRLEINEMYGINEYFSFLFQL
TIPFGLLFQLPVVVMFLTRLGVVTPFTFLRKIRKYAYFALLVIAGII
TPPELTSHLFVTVPMLILYEISITISAITYRKYHGTTHNGQESAK

FIG. 14